

Principles for Transmission Loss Methodology

One of the challenges facing RTO West market design is to develop a model for allocating transmission losses. Traditionally, transmission losses have been internalized by transmission owners and differentiated from distribution losses only when needed to define a loss component for wheeling contracts. This loss component is typically a system average percentage that might even be replaced in kind often at some future date. In a market characterized by an independent RTO that operates the transmission system and settles costs fairly with all transmission system users, losses need to be revisited and a new model considered. The following principles will form the basis for evaluating potential models and choosing among alternatives.

1. Losses allocation should be accurate and based on cost causation.

This principle is the major test by which most aspects of loss calculation must be judged. It requires a good understanding of the variables that impact the magnitude of losses and an effective incorporation of those variables into the model. To the extent that losses vary significantly by time of day, season, system load and location of injection/withdrawal, such variation should be accounted for in the allocation methodology. Adhering to this principle will assure that the cost of losses is recovered from the entities responsible for them and send appropriate price signals to reinforce efficient grid use decisions on both a short term (scheduling and dispatch) and long term (generation siting) basis. This principle argues against a simplified, system average losses approach and favors something like use of an AC load flow model to determine marginal losses under various conditions.

2. Model should be straightforward – easy to understand, simple to administer and reasonably predictable.

While accuracy of allocation is important, it must be balanced by commercial considerations. Anyone using the system should be able to determine the losses attributable to their usage with minimal effort and prior to the usage. Ex post loss allocation, while potentially more precise, is inconsistent with commercial

interests and provides no ability to respond to price signals. The RTO should be able to administer losses without undertaking complex ongoing calculations and in a way that can be reasonably replicated. Engineering precision should not be allowed to overwhelm functionality.

3. Loss allocation should be consistent for all system users

Losses are a physical attribute of the transmission system. As such, they should be allocated in a consistent manner for all users of the system. To the extent that non-converted contracts have different loss allocation methodologies, the underlying losses (as determined by the RTO's allocation methodology) should be allocated to the RTO participant that is party to the contract.

4. Allocation model should not be “gameable.”

In developing an accurate allocation model, opportunities for participants to artificially shift or avoid appropriate loss responsibility should be minimized. This means that loss allocation for a transaction should be consistent over time (no different loss estimates for scheduled versus actual flows) and consistent geographically (losses from A to C should equal losses from A to B and B to C). Simplicity goes a long way to minimizing potential gaming.

5. Losses model must be consistent with market design

This means that participants should be able to self provide losses or purchase them from the RTO. It also means that losses should be easily accounted for in the congestion management process and fit into the RTO settlement process.